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DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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DOGM
MINERALS PROGRAM
FILE COPY

December 21, 1990

Mr. Milo Bosshardt
Redmond Clay & Salt Co.
370 South State
Redmond, UT 84652

Dear Mr. Bosshardt:

Re: Reclamation Estimate for Redmond Clay & Salt Co., M/039/002, Sanpete County, Utah

Please find attached a reclamation cost estimate prepared by the Division for the mining related disturbances associated with Redmond Clay and Salt. I apologize for the delay in providing this information to you. The delay was partly due to the backlog of staff review work and partly due to the difficulty in arriving at this reclamation cost estimate. Maps recently supplied by you along with photographs taken at the site investigation, constituted the majority of information used to calculate this estimate.

Information currently held by the Division for your operation is not adequate nor accurate enough to calculate a more realistic reclamation cost estimate than what is presented in the attachment. Evidence of this may be found by reviewing the number of items in the Reclamation Details sections preceded by "ASSUMED".

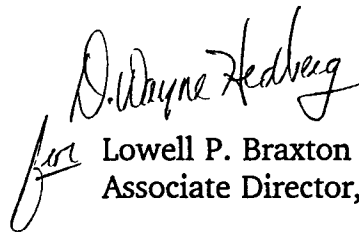
On the basis of the above, please consider the estimate as a rough draft. The Division asks for your assistance in helping to reduce the number of assumptions in this estimate by providing more specific information regarding those structures or facilities which are listed under the "ASSUMED" headings. The Division also welcomes your comments on any of the other line items or reclamation treatments described in the attached estimate.

Please feel free to contact me or Wayne Hedberg of my staff if you have any questions. Please provide a response to this letter by February 15, 1991. I would

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Redmond Clay & Salt Co.
M/039/002
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suggest that a meeting be scheduled to work out the specific "unknowns" regarding this reclamation estimate as soon as practicable. Your continued efforts in this permitting process are greatly appreciated.

Sincerely,


for Lowell P. Braxton
Associate Director, Mining

jb
Attachment
cc: Minerals Staff
MNM039002.1

RECLAMATION ESTIMATE	PAGE 1 of 6
Redmond Clay and Salt Company	last REV 12/10/90
North Mining Property	Sanpete County
M/039/002	
Prepared by Utah State Division of Oil, Gas & Mining	

Reclamation Details – North Mine Property

- Areas designated as Pre-Law by the Division are to be left as is
- Closure of all mine portals by blasting/backfilling for 15 feet inside
- Regrade portal closure to a 2 horizontal: 1 vertical slope (26 degrees)
- ASSUMED: 2 salt mine portals; portal dimensions 65 ft x 40 ft
- ASSUMED: Salt Mine highwalls are 100 ft high for entire pit area
- ASSUMED: Clay Mine highwalls are 60 ft high for entire pit area
- Pit highwalls to be blasted to 1:1 slope (45 degrees) for entire perimeter
- Pit floors to be Ripped, Mulched, Disked, Fertilized, & Seeded(R-M-D-F-S)
- Waste dumps & piles to be regraded to a 3h:1v slope (18 degrees)
- All waste dumps & piles to be M-D-F-S
- Roads designated by the Division as having a post-mining use to be left as is
- All other roads to have berms removed, be regraded, and be R-M-D-F-S

<u>Description</u>	<u>Amount</u>	<u>\$/Unit</u>	<u>Cost-\$</u>
Blasting 2 portals	3,000 CY	5.55	16,650
Regrading 2 portal closures	2,000 CY	0.25	500
Blasting salt pit highwalls	715 LF	4.25	3,039
Rip Salt pit floor	0.81 acre	955	774
M-D-F-S Salt pit floor	0.81 acre	1,480	1,199
Blasting clay pit highwalls	4,290 LF	1.56	6,692
Rip Clay pit floors	4.07 acre	955	3,887
M-D-F-S Clay pit floors	4.07 acre	1,480	6,024
Regrade waste dump	1.39 acre	802	1,115
M-D-F-S Waste dump	1.39 acre	1,480	2,057
Regrade gravel pile	1.57 acre	802	1,259
M-D-F-S Gravel pile	1.57 acre	1,480	2,324
Rip roads & regrade berm	3.44 acre	1,055	3,629
M-D-F-S Roads	3.44 acre	1,480	5,091
	SUBTOTAL		54,239
	+ 10% CONTINGENCY		5,424
	SUBTOTAL		59,663
	+ 5 yr ESCALATION(1.84%)		5,695
NORTH MINING PROPERTY SUBTOTAL IN 1995-\$			\$65,357

RECLAMATION ESTIMATE	PAGE 2 of 6
Redmond Clay and Salt Company	12/10/90
South Mining Property	Sanpete County
M/039/002	
Prepared by Utah State Division of Oil, Gas & Mining	
<u>Reclamation Details – South Mine Property</u>	
-Closure of all mine portals by blasting/backfilling for 15 feet inside	
-Regrade portal closure to a 2 horizontal: 1 vertical slope (26 degrees)	
-ASSUMED: 4 salt mine portals; portal dimensions 65 ft x 40 ft	
-ASSUMED: Salt Mine highwalls are 100 ft high for entire pit area	
-Pit highwalls to be blasted to 1:1 slope for entire perimeter	
-Pit floors to be Ripped, Mulched, Disked, Fertilized, & Seeded(R-M-D-F-S)	
-Waste dump & new earth removal area regraded to a 3h:1v slope (18 degrees)	
-Waste dump & new earth removal areas to be M-D-F-S	
-Yard area (includes facilities area) to be R-M-D-S-F	
-ASSUMED: Metal scrap to be buried on mine site and area R-M-D-S-F	
-Roads graded & R-M-D-S-F unless a Division designated post-mining use	
<u>Description</u>	<u>Amount</u> <u>\$/Unit</u> <u>Cost-\$</u>
Blasting 4 portals	6,000 CY 5.55 33,300
Regrading 4 portal closures	4,000 CY 0.25 1,000
Blasting salt pit highwalls	1,925 LF 4.25 8,181
Rip Salt pit floor	2.06 acre 955 1,967
M-D-F-S Salt pit floor	2.06 acre 1,480 3,049
Regrade Waste dump	1.08 acre 802 866
M-D-F-S Waste dump	1.08 acre 1,480 1,598
Regrade Earth removal area	2.51 acre 802 2,013
M-D-F-S Earth removal area	2.51 acre 1,480 3,715
Rip Yard area	5.20 acre 955 4,966
M-D-S-F Yard area	5.20 acre 1,480 7,696
Bury metal scrap	0.77 acre 1,210 932
Rip Metal Scrap area	0.77 acre 955 735
M-D-S-F Metal Scrap area	0.77 acre 1480 1,140
Rip roads & regrade berm	6.22 acre 1,055 6,562
M-D-F-S Roads	6.22 acre 1,480 9,206
SUBTOTAL	86,926
+ 10% CONTINGENCY	8,693
SUBTOTAL	95,618
+ 5 yr ESCALATION(1.84%)	9,127
SOUTH MINING PROPERTY SUBTOTAL-A	IN 1995-\$ \$104,745

RECLAMATION ESTIMATE		PAGE 3 of 6
Redmond Clay and Salt Company		12/10/90
South Mining Property		Sanpete County
M/039/002		
Prepared by Utah State Division of Oil, Gas & Mining		
<u>Reclamation Details – South Mine Property --CONTINUED--</u>		
-Pond area to be backfilled/regraded and M-D-S-F		
-ASSUMED: All facilities to be demolished and buried on site; no salvage value		
-ASSUMED: The following dimensions for each facility listed below		
-Shed 45'x20'x18'; Shop 70'x30'x20'; Primary Crusher 60'x30'x20';		
-Secondary Crusher 60'x30'x20'; Mill 150'x80'x25'; Bulk Storage 150'x140'x25';		
-Scales 75'x20'x15'; Old Compressor House 30'x30'x12': Old Pump		
-House 30'x30'x12': Compressor House 30'x30'x12'; Tank 25' diameter;		
-ASSUMED: Crushers have reinforced concrete; bldgs have concrete floors		
<u>Description</u>	<u>Amount</u>	<u>\$/Unit</u> <u>Cost-\$</u>
Backfill/Regrade Pond	0.44 CY	802 353
M-D-S-F Pond area	0.44 CY	1480 651
Demolish Shed	16,200 CF	0.20 3,240
Demolish Shop	42,000 CF	0.20 8,400
Shop Concrete Floor**BURIED ONSITE**	0 SY	11.75 0
Demo. Primary Crusher	36,000 CF	0.20 7,200
Crusher Concrete**BURIED ONSITE**	0 CY	245 0
Demo. Secondary Crusher	36,000 CF	0.20 7,200
Crusher Concrete**BURIED ONSITE**	0 CY	245 0
Demolish Mill **POST MINING USE**	300,000 CF	0.20 0
Demo. Mill Concrete Floor**POST USE**	1333 SY	11.75 0
Demo. Bulk Str.**POST MINING USE**	525,000 CF	0.20 0
Demo. Bulk Storage Floor**POST USE**	2333 SY	11.75 0
Demolish Scales	22,500 CF	0.20 4,500
Demo. Old Pump House	10,800 CF	0.20 2,160
Demo. Old Compressor House	10,800 CF	0.20 2,160
Demo. Compressor House	10,800 CF	0.20 2,160
Demolish Tank	1 ea	500 500
SUBTOTAL		38,524
+ 10% CONTINGENCY		3,852
SUBTOTAL		42,376
+ 5 yr ESCALATION(1.84%)		4,045
SOUTH MINING PROPERTY SUBTOTAL-B		IN 1995-\$ \$46,421

RECLAMATION ESTIMATE	PAGE 4 of 6
Redmond Clay and Salt Company	12/10/90
Clay Mining Property	Sanpete County
M/039/002	
Prepared by Utah State Division of Oil, Gas & Mining	

Reclamation Details – Clay Mine Property

- ASSUMED: Clay Mine highwalls are 60 ft high for entire pit area
- Pit highwalls to be blasted to 1:1 slope for entire perimeter
- Four Pits: (1) 1.17 acre P=1,040'; (2) 2.61 acre P=1,250';
- (3) 1.18 acre P=1,040'; (4) 2.44 acre P=2,080';
- Pit floors to be R-M-D-F-S
- ASSUMED: Clay Pads have an earthen base
- Two Clay Pads: (1) 2.36 acre; (2) 11.16 acre; to be R-M-D-S-F
- Brine Pond to be backfilled/regraded & M-D-S-F
- ASSUMED: Clay Mill to be demolished and debris buried on site
- ASSUMED: Clay Mill dimensions are 250'x100'x20', with a concrete floor
- Roads to be R-M-D-S-F unless Division designated as post-mining use

<u>Description</u>	<u>Amount</u>	<u>\$/Unit</u>	<u>Cost-\$</u>
Blasting clay pit highwalls	5,410 LF	1.56	8,440
Rip Clay pit floors	7.40 acre	955	7,067
M-D-F-S Clay pit floors	7.40 acre	1,480	10,952
Rip Clay Pads	13.52 acre	955	12,912
M-D-S-F Clay Pads	13.52 acre	1480	20,010
Backfill/Regrade Brine Pond	0.69 acre	1210	835
M-D-S-F Brine Pond	0.69 acre	1480	1,021
Demo. Clay Mill**POST MINING USE**	500,000 CF	0.20	0
Demo. Clay Mill Floor**POST USE**	2,777 SY	9.20	0
Rip roads & regrade berm	8.24 acre	1,055	8,693
M-D-F-S Roads	8.24 acre	1,480	12,195
	SUBTOTAL		82,124
	+ 10% CONTINGENCY		8,212
	SUBTOTAL		90,337
	+ 5 yr ESCALATION(1.84%)		8,623
CLAY MINING PROPERTY SUBTOTAL	IN 1995-\$		\$98,959

RECLAMATION ESTIMATE		PAGE 5 of 6
Redmond Clay and Salt Company		12/10/90
Salt & Clay Mining Properties		Sanpete County
M/039/002		
Prepared by Utah State Division of Oil, Gas & Mining		
<p>*** REFERENCES USED IN CALCULATING THIS ESTIMATE:</p> <p>-Means Site Work Cost Data 1990</p> <p>-Caterpillar Performance Handbook, Edition 18</p> <p>-Rental Rate Blue Book, 1989 & 1990 sources</p> <p>Blasting [022-234-0100] <= Means Reference Number</p> <p>Mulch [029-516-0350]</p> <p>Disking [029-204-6050]</p> <p>Seeding [029-308-1600]</p> <p>Fertilizing [029-720-0130]</p> <p>Building Demolition & Disposal (Burial) [020-604-0500] & [020-604-0100]</p> <p>Concrete Demolition, 6" thick, mesh reinforced [020-554-1900]</p> <p>Concrete Demolition, 6" thick, rod reinforced [020-554-2000]</p> <p>Concrete Demolition, 7-24" thick, reinforced [020-554-2200]</p> <p>***The following items were calculated by the Division using the</p> <p>*** Cat Handbook, Blue Book and SME Mining Engineering Handbook, 1973:</p> <p>Regrading: Portal Closures, Dumps, Piles, Ponds</p> <p>Ripping: Pit Floors, Roads, Pads; Blasting Pit Highwalls</p> <p>Burying Scrap Metal</p>		
<u>SUMMARY OF RECLAMATION COSTS</u>		
NORTH MINING PROPERTY SUBTOTAL		\$65,357
SOUTH MINING PROPERTY SUBTOTAL-A		\$104,745
SOUTH MINING PROPERTY SUBTOTAL-B		\$46,421
CLAY MINING PROPERTY SUBTOTAL		\$98,959
TOTAL OF RECLAMATION ESTIMATE		\$315,483
ROUNDED TOTAL OF RECLAMATION ESTIMATE IN 1995-\$		\$315,500

RECLAMATION ESTIMATE		PAGE 6 of 6
Redmond Clay and Salt Company		12/10/90
Salt & Clay Mining Properties		Sanpete County
M/039/002		
Prepared by Utah State Division of Oil, Gas & Mining		
NOTE		
All areas used in this estimate were found by using a digitizer to measure areas shown on the scaled maps provided by the Operator		
<u>NORTH MINING PROPERTY</u>		<u>ACREAGE</u>
Old Uncovering & Waste Pile (PRE-LAW 3.98 acre)		0.00
Old Poulson Mine (PRE-LAW 0.80 acre)		0.00
Salt Mine		0.81
Clay Pits		4.07
Waste Dump		1.39
Overburden Gravel Pile		1.57
All roads except county road		2.80
Roads outside block but mining associated		0.64
	SUBTOTAL	11.28
<u>SOUTH MINING PROPERTY</u>		
Old Earth Removal Fill & Dump (PRE-LAW 10.88 acre)		0.00
New Earth Removal		2.51
New Waste Dump		1.08
Yard Area (Estimated)		5.20
Metal Scrap Pile		0.77
Mill, Facilities & Salt Pile		1.20
Roads within block, excluding county road and farm road		3.82
Dry Pond		0.44
Salt Mine		2.06
Roads outside block but mining associated		2.40
	SUBTOTAL	19.48
<u>CLAY MINING PROPERTY</u>		
Clay Pits		7.40
Clay Pads		13.52
Brine Pond		0.69
Clay Mill		0.57
All roads except county road & farm access		8.24
	SUBTOTAL	30.42
TOTAL DISTURBED ACREAGE		61.18